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Japanese

Warfare

A Summary

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**MILITARY INTELLIGENCE
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Washington, May 20, 1942**

**INFORMATION
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No. 16
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Section I. INTRODUCTION

The success of the Japanese in the current Far Eastern conflict has been due primarily to thorough pre-war preparations, to experience gained in more than 4 years of war in China, to development of tactics peculiarly suited to the theaters of operations, to close coordination of air, land, and sea forces into efficiently working combat teams, and to the proximity of Japanese armed forces to the scene of conflict.

The pre-war preparations included the training of perhaps 3,000,000 men in the methods of modern warfare, the development of new landing tactics and equipment well adapted for attack on the coveted areas, the perfection of jungle tactics, the collection of supplies and armament at strategic points, and the indoctrination of almost fanatical morale among the Japanese armed forces. Furthermore, Japan spread propaganda undermining the influence of the white race throughout southern Asia and the southwest Pacific islands and developed a Fifth Column which has surpassed all previous examples of this new phase of warfare—all to aid her armed forces once ashore.

The Japanese used China as a proving ground for tactical theories in land, sea, and air operations which they have later used against the United Nations. Their

staff officers were keen to anticipate the types of opposition that would be encountered and the conditions under which their men would have to fight—and they planned accordingly.

Because of close proximity to the theater of operations, Japan has been able to mass quickly concentrations of overwhelming forces at critical points. And in order that full benefit could be derived from this initial advantage, armed forces were organized, equipped, and trained to function with high speed and mobility.

Japanese training stresses the necessity for aggressive fighting spirit, for resourcefulness, and for initiative. The Japanese Army has always laid special emphasis on the fundamental fighting virtues of good physical condition, of ability to perform long marches and to cross difficult terrain, swimming where necessary, and of being able to fight with tenacity. Operations show that the cooperation of all arms has also been stressed. This is indicated by the close liaison in battle between the supporting aircraft and front-line company commanders, who communicated with each other by radio, and by the aid that the engineers have rendered to the leading infantry and armored elements in the speedy repair of demolished bridges and the speedy removal of obstacles. These doctrines, combined with the ability to exploit readily usable captured matériel, have given the Japanese a battle technique well suited to the tropical Far East theaters of war. Not merely imitators, as some have believed, the Japanese are quick to adapt foreign techniques to their own requirements.

The high standard of discipline obtained in the Japanese armed forces is due, at least in part, to the almost universal belief in Japan that the emperor is a direct descendant of a "heavenly" sun goddess and that no sacrifice is too great for the "Son of Heaven." The Japanese believe that no greater honor is possible for a warrior than death on the field of battle.

Section II. TASK FORCES FOR LANDING OPERATIONS

1. GENERAL

Japanese landing operations show that considerable thought and training have been devoted to the coordinated employment of the army, the navy, and the air arm in amphibious warfare. Task forces composed of units from such fighting arms have specially devised tactics and highly developed landing equipment. The latter includes both landing-craft carriers which discharge fully loaded boats from their sterns and sides, and landing craft specially designed to negotiate shallow and weed-infested waters. Rubber assault boats and special equipment to aid the individual soldier, such as rubber belts which can be inflated, have also been used.

2. TASK FORCES

a. Organization

In recent operations the Japanese have used two types of joint task forces involving air, ground, and sea personnel and equipment—the divisional group and the brigade group. Their composition was as follows:

(1) *Divisional group*.—(a) From 70 to 92 shore-based aircraft consisting of 30 to 40 heavy bombers; 24 to 36 fighters; 8 flying boats; and from 40 to 100 carrier-borne planes;

(b) One division of troops (15,000);

(c) One battalion of parachute troops (1,600);

(d) From 32 to 46 vessels consisting of 2 aircraft carriers (each capable of carrying 40 to 60 planes); 6 cruisers (each of which carried 3 reconnaissance planes); 2 to 4 submarines; 10 to 14 destroyers; and 12 to 20 transports.

(2) *Brigade group*.—(a) From 48 to 58 shore-based aircraft consisting of 20 to 30 heavy bombers; 12 to 24 fighters; 8 flying boats; and 48 carrier-borne planes;

(b) 5,000 ground troops;

(c) From 19 to 25 vessels consisting of 1 aircraft carrier; 3 to 4 cruisers; 1 to 2 submarines; 6 to 8 destroyers; and 8 to 10 transports.

(3) *Other groups*.—(a) *Landings in China*.—Practically all Japanese landings in China were made with a force of two divisions (40,000 men or less). Equipment taken ashore included 3-ton tanks, 105-mm. field howitzers, and 75-mm. field guns. The Yuhung River landings by the Nakamura Detachment in 1939 which led to the capture of Nanning, China, involved only about 3,500 troops.¹ The force consisted of the following units:

Headquarters 21st Infantry Brigade, 5th Division—
(10 officers and enlisted men).

¹ This particular information was taken from captured Japanese orders. For detailed tactics employed in this landing operation, see Section I, Information Bulletin No. 12, M. I. S.

21st Infantry Regiment—

(3 battalions, each with 4 rifle companies and 1 machine-gun company—2,716 officers and enlisted men).

Brigade and Regimental Detachments—**Infantry Gun—**

(75 officers and enlisted men).

Signal—

(60 officers and enlisted men).

One Battery of Field Artillery—

(About 175 officers and enlisted men—4 guns, 4 sections, Hq. detail, combat train).

One Battery of Mountain Artillery—

(About 175 officers and enlisted men—4 guns, 4 sections, Hq. detail, combat train).

One Engineer Company—

(About 170 officers and enlisted men)—4 platoons).

One Mounted Platoon—

(About 20 officers and enlisted men—2 squads).

Medical Troops—

(About 60 officers and enlisted men).

(b) *Naval landing parties.*—These are trained to perform missions similar to the United States Marines. They engage in combat in cooperation with army units or act independently, and they are also used frequently to garrison enemy territory taken over by the navy.

Usually a naval landing party is an improvised battalion which consists of 2,000 officers and enlisted men organized in 4 companies. Three of the companies have 6 rifle platoons and 1 machine-gun platoon in each, whereas the fourth company has 3 rifle platoons, 1 machine-gun platoon, and an artillery unit of 4 guns. Additionally, a party sometimes has tanks and armored cars attached when serving in a garrison capacity.

Naval landing parties are trained and equipped to undertake any type of land operation within the scope of their numerical strength. All naval personnel are trained concurrently in both land and naval warfare. The training begins when the individual enters the service and continues ashore and afloat, as opportunity offers. The individual's progress in both phases of combat is noted on his service record by his superiors, together with any special qualifications he may possess. The landing parties are selected from those having the best records. The navy, therefore, possesses at all times a large number of personnel qualified for landing and land operations.

b. Ship Loads

The allowance for transport by water is about 4 to 5 tons per man. Normally two or three transports carry two-thirds of the troops, and the remaining smaller vessels carry the supplies and the remainder of the troops.

3. LANDING OPERATIONS

a. Preparations

(1) *Preliminary*.—For a number of years Japanese officers and secret agents, disguised in many cases as fishermen, gathered pertinent military information in the areas which the Japanese attacked. The army even had meteorological experts assigned throughout the islands of the southwest Pacific and in Malaya, Burma, China, Thailand, and Indo-China until as late

as September 1941. Many of these men, including professors in the science of meteorology, were employed as laborers on rubber plantations and in rice fields and tin mines. They made particular studies on the beginning and the ending of the monsoon.² Their findings were based on rainfall, atmospheric pressure, temperature, and sun-spot observations. The army claims that the studies enable it to forecast when the monsoon will begin, how long it will last, and whether it will be normal, wet, or dry

The timing and routing of Japanese military thrusts in recent months indicate careful study and full consideration of weather factors. The staff of each field army includes commissioned meteorologists and enlisted assistants.

In all their recent landing operations the Japanese have made air reconnaissance weeks ahead of the landings. Besides aircraft, secret agents and submarines have aided in making early reconnaissances. In each instance to date, the Japanese have selected landing sites within 400 miles of at least one Japanese air base.

(2) *Final*.—Submarines usually make additional reconnaissance ahead of the task forces. Long-range planes—which may be flying boats—follow up with more reconnaissances and also light daylight attacks. Type 96 heavy bombers, usually unescorted by fight-

²A periodic wind in certain latitudes of southern Asia and the Indian Ocean. It blows from the southwest from the latter part of April to the middle of October and from the northeast from about the middle of October to April. Generally, the southwest monsoon in India and the adjacent countries brings unusually heavy rainfall.

ers, then make light attacks to damage runways, destroy airdrome installations, get data on the opposition and secure weather information.

However, if the first group of reconnaissance planes detects concentrations of defending aircraft on airdromes in the vicinity of the objective, a surprise raid in force is made to destroy the planes on the ground. Planes used in the raid include high-level-type bombers, dive bombers, and fighters. The dive bombers and fighters concentrate on planes dispersed within revetments near the field, since the revetments lend a considerable measure of protection from high-level bombers unless direct hits are scored. The Japanese keep a close watch for replacements on the airdromes and maintain sustained attacks until defending planes have been destroyed or forced to leave.³

A final heavy bombing attack is made before darkness on the night the landings are attempted. Usually 50 to 150 aircraft make the attack to destroy communications, coast defense batteries, and anti-aircraft installations. The air attack sometimes is assisted by warships which shell the defense areas from positions offshore. The ships can achieve howitzer fire by high elevation of guns and use of a reduced charge.

The approaching convoy is protected doubly on the day before landings are attempted. Direct air reconnaissance is given from all bases and carriers within

³ In some cases, particularly in China, in order to achieve surprise, the Japanese made no preliminary reconnaissances or bombardments.

range, and harassing attacks are made on opposition air bases from which attacks could be made on the convoy. If a suitable anchorage is available, troop ships, landing-boat carriers, and supply vessels stop for the night preceding the landing attack. If no anchorage is available, the vessels arrive off the designated landing place between midnight and dawn.

The Japanese do not consider rough weather or unfavorable beaches as obstacles; in fact, such conditions sometimes are chosen deliberately and considerable loss of life by drowning is accepted in order to achieve surprise. The time for the landing operations usually is 2 or 3 hours before high tide, on moonless nights if possible. This rule is broken only for strategical or navigational reasons.

If feasible, a few landing craft with engineers try to gain the shore secretly, before operations begin, to set up small lights—not visible from inshore—to guide the landing craft. In some instances, Fifth Columnists install the lights for the engineers. As a rule, at least part of the landing boats reach the beach before daylight. From 5 to 16 miles of shoreline are utilized for the landings.

b. The Landing Battle

Warships—which include cruisers and destroyers and sometimes aircraft carriers—form a protective screen around the troop transports during landing operations. Their guns are set to fire either at opposing aircraft or onshore batteries. Meanwhile transports carrying the advance assault troops go as near the

shore as feasible before the troops disembark in small motor-propelled landing boats.⁴

A heavy machine gun and a light machine gun⁵ are set up near the bow of each boat for the landing attack, and each man, not otherwise engaged, has a rifle or a light automatic weapon to fire. Patrol boats armed with pompoms and machine guns give close support to the landings. Air support is available if needed. If used, it is under radio control of the landing units. The bulk of the air task force is held in reserve to counterattack opposition bases within effective range.

When very near the shore the Japanese, all equipped with life jackets, plunge into the water regardless of its depth, since the waves will carry them to the shallow water. If at all possible, the Japanese try to land with the initial force some light artillery, usually mountain-type (75's), and light tanks. Transports with the main body of troops remain some distance from the shore until the beach has been secured. Then the remainder of the troops are disembarked. The landings are directed either against fixed objectives or into localities which will permit flanking movements. Earliest landing parties use radio to direct air support.

⁴ See paragraphs 41a and b, pages 73-75, for detailed descriptions of Japanese landing boats.

⁵ In one attempt to land on the east coast of Bataan, the Japanese mounted 75-mm. guns and smaller weapons on barges. Effective artillery fire from United States and Filipino troops sank several of the barges and forced others to withdraw. Japanese losses were heavy.

c. Action after Landing

Once having established a beachhead, the Japanese push inland rapidly, carrying out thorough air and ground reconnaissance ahead of their advance units. Automobiles, bicycles, gasoline, and other supplies are confiscated quickly, and small groups, making the fullest possible use of darkness, penetrate the lines of the opposition to harass defended positions from the rear, cut communications, and attempt to force withdrawals.

If unopposed at the beaches, the Japanese hold to the roads, as a rule, until making contact with the opposition. They also use rivers and creeks to penetrate inland by boat and to turn flanks. They have special craft for such operations, including pontons propelled by outboard motors and boats driven by airplane-type motors with propellers rigged above the surface of the water. Smoke screens are used freely to facilitate inland movements. To avoid being fired on by their own planes, Japanese patrols and smaller units out in front are required to identify themselves during daylight with Rising Sun flags displayed toward the sky.

Meanwhile, immediately upon landing, parachute troops or special units of ground forces try to seize airdromes from which fighter planes may operate (protection of ground troops the first day usually is provided by seaplanes or carrier-based aircraft). Fighter squadrons are formed quickly, and from one or more seized airdromes, or from carriers, type O

navy fighters come to the support of troops as quickly as possible.

Native labor is put to work repairing and resurfacing airdromes and extending them for use by heavy bombers within 2 to 7 days. Within 14 days, prefabricated shelters are put up, interceptor units are installed, and an aircraft warning service is spread over a 60- to 100-mile area. There also is evidence of searchlight installations being correlated with effective sound detectors. Supplies are accumulated and at intermediate points service and maintenance units for aircraft are set up—all within a period of 2 to 3 weeks.

The Japanese are great believers in thorough reconnaissance—a fact definitely established by translation of the captured orders dealing with the landing operations which led to the capture of Nanning. They seek information about the opposition by use of air reconnaissance and scouts; by questioning prisoners (especially high-ranking officers); by scrutinizing local newspapers, annuals, and other literature in occupied towns, and captured documents; and by careful estimation. The information obtained is sent immediately, by radio if practicable, to unit headquarters.

Section III. GROUND FORCES

4. GENERAL

Basically, tactics of the Japanese are no different from those employed by other modern armies. In jungle warfare, however, their tactics have been characterized by speed, deception, and the use of modern automatic weapons. In instances when numbers would gain a quick decision, Japanese commanders have not hesitated to commit sufficient force to overwhelm the opposition even though at great cost in Japanese lives.

Thorough reconnaissance usually precedes all operations. Means of communication, particularly radio, are employed even to the lowest units. Camouflage is stressed to include measures taken by the individual soldier. Ruses and feints are extensively employed. The Japanese have quickly discovered that in many instances bluff is far more economical than force.

Lightly dressed and equipped, the Japanese soldier possesses great mobility; generally he is independent of supply lines, and is taught to live off the land.

5. MOVEMENT

The Japanese employ all available means of transportation to move troops speedily along highways and

railways, and through jungles and water areas, never failing to utilize civilian, army, and naval conveyances as they are captured. . The speed of their movements has been facilitated by light equipment, simple rations, and a minimum amount of clothing, weapons, and ammunition, plus, in many cases, the aid of Fifth Column guides.

a. By Water Craft

The Japanese look on water as a highway, not as an obstacle. In both Malaya and Burma, the Japanese employed small specially-designed river boats and small confiscated civilian boats to infiltrate patrols to the flanks and rear of defending forces. The patrols, sometimes composed of large numbers of troops, generally moved at night. When they moved in daylight, air protection was afforded them. Such movements were possible very often because of the large number of rivers and inlets in Malaya, particularly along the west coast. A succession of infiltrations by boats down the west coast aided greatly in forcing several British withdrawals. The boats usually hid in numerous well-covered inlets by day and traveled close to the coast line at night until reaching their destination. In some cases the Japanese used rafts made of bamboo poles.

b. By Motor

Most of the trucks used by the Japanese to date have been light because of the soggy or rough terrain encountered in nearly all theaters of operation. The

trucks have been employed mainly to transport troops and supplies. They usually have been bunched while moving and at a halt, and lights have been used rather freely. Both bunching and lighting afforded excellent targets for the opposition.

c. By Rail

Large quantities of heavy Japanese supplies and some troops were moved by rail from Indo-China and Thailand into northern Malaya. To facilitate repair of railroads and bridges, apparently large stocks of railroad matériel were accumulated in Indo-China before the invasion of Malaya. Japanese engineers appear capable of making quick temporary repairs to damaged railroad and highway bridges.

d. By Air

The Japanese have used air transports for both personnel and supplies, but the extent of such activities is not known. They used 100 transports in a parachute attack on Palembang, Sumatra, and, according to reports, 1,500 troops were transported by air, apparently from Bangkok, possibly from Hanoi, to the vicinity of Chieng-mai in Thailand. It is believed that the enemy uses transport aircraft for aviation supplies, although no detailed intelligence has been received to this effect. It is definitely known that air-borne troops have been trained and that the Japanese began a study of the possibilities of air transport some time before war began.

e. By Bicycles

The Japanese utilized a large number of locally obtained bicycles in Malaya to move troops and light equipment to the front. Usually the riders traveled along the road in single file. Mortars, mortar ammunition, and small arms ammunition were carried on an iron-wheeled vehicle which was attached by a chain to a tandem bicycle propelled by three men.

6. TACTICS

a. Offensive

(1) *Approach march*.—The Japanese company uses roads as far as possible until contact with the enemy is made. One squad¹ of each platoon usually travels along the sides of the road and the other squads travel under any available cover on each flank. The leading element of the company consists of 6 scouts, who range about 350 yards ahead of No. 2 platoon (fig. 1). Back of this platoon by 200 to 350 yards is company headquarters, followed closely by No. 3 platoon and then No. 1 platoon. When the squad uses scouts to locate hostile positions, the scouts return to the squad before the attack.

(2) *Infiltration*.—Once having made contact with the opposition, the Japanese avoid frontal attacks in force and send patrols around the flanks and to the rear of their opposition. These patrols usually are

¹ The Japanese infantry squad (called a *buntai* by the Japanese) consists of 10 to 13 men as compared to 12 in the United States infantry.

small, consisting of from two to a few dozen men. They are dressed lightly but are armed with light machine guns. Each man carries enough concentrated food to keep him going for several days. These men apparently have been trained thoroughly, hardened for jungle warfare, and given wide discretion as to tactics. They are expert swimmers and boatmen and are otherwise qualified to overcome the difficulties of jungle warfare. They have been instructed to look upon woods and water as means, not obstacles. In the initial stages of the infiltration attacks, small patrols creep noiselessly around the flanks or between defense points to surround the opposition. Usually they remain quiet until their comrades in front of the defenders feint a heavy frontal attack. Then the infiltration patrols open automatic fire to give opposing forces the impression that they have been surrounded. The patrols keep moving about while firing and even when fired on. The volume of fire produced by an unusually large number of automatic weapons in the hands of the patrols and front-line troops indicates stronger forces than those actually engaged. Sometimes the Japanese have set off firecrackers and have made other noises to imitate fire. Sometimes great batches of firecrackers are dropped from planes, with a lighted fuze to ignite them after they fall.

The Japanese seek by these tactics to confuse the defenders; to force quick withdrawals with the hopes of capturing large quantities of weapons, transport, supplies, and men; and to destroy command posts. To

aid in accomplishing these aims, some of the patrols are assigned specifically to block roads to the rear.

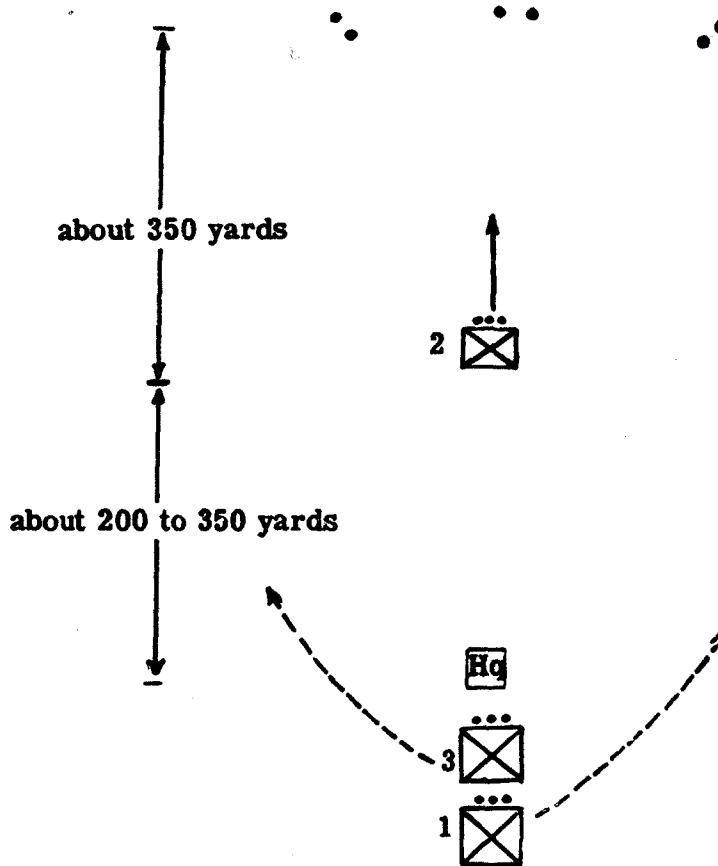


Figure 1. Approach march of Japanese infantry company.

During the Malayan campaign, such infiltration tactics were a constant menace to British artillery, particularly columns on roads. Japanese parties infiltrated between the elements of the columns and prevented them from advancing or retreating. Artillery

communication wire in forward zones was cut by the Japanese or native partisans almost as soon as it was laid. After cutting the wire, the enemy troops often hid nearby and fired on the line guards when they approached.

In their infiltration tactics, the Japanese move rapidly at times, and very slowly and patiently on other occasions. They have stood in ditches in rice fields for hours, up to their necks in water, waiting for targets to appear; they have lain concealed in underbrush for long periods waiting for chances to advance without being observed.

In cases of counterattacks, the Japanese permit the opposing forces to pass through, then turn and fire on the flanks and rear of the counterattacking troops.

In both Malaya and the Philippines, some of the infiltrating Japanese, excellently camouflaged, climbed trees, and acted as snipers. They tied themselves to the trees with ropes. Light machine guns carried by the snipers appeared to be fitted with spikes or similar means of rapidly attaching the weapons to trees. The snipers sought particularly to pick off occupants of Bren gun carriers and officers. Occasionally the snipers threw hand grenades into passing trucks and carriers. Trees were used also as observation posts, and on occasions whole parties thus concealed themselves in clumps of woods and dense jungle growth for several days at a time.

(3) *Attack*.—The Japanese usually begin large-scale attacks at dawn, with the infantry very closely supported by aircraft and artillery.

Their basic principle of attack is to dispose a small force against organized localities and then envelop the flanks and attack the rear. This method has been particularly effective against troops who have been established in an organized position with supplies of food and ammunition at a distance to the rear. The Japanese attack against the flanks and rear of such a position has forced units to withdraw and, occasionally, to fight their way back to regain connection with their ammunition and food supplies. Great speed has characterized the development of such flanking movements which have at times struck 4 or 5 miles in rear of the front line.

(4) *Infantry platoon² tactics*.—Squads 1 and 2 of the platoon make frontal assaults while Squad 3 attacks either the opposition's right or left flank (fig. 2). Because of the danger of hitting friendly troops and also of weakening squad strength, the squad rarely ever is divided to attack both flanks at the same time. Squad 4 usually operates fairly close to the front line, in a reserve fire-power position about midway between Squads 1 and 2. The light machine guns of the first three squads generally are used in the front lines—rarely ever as reserve fire power.

The following modification (fig. 3) of the formation shown in figure 2 is sometimes used.

² Squads 1, 2, and 3 are armed with rifles and bayonets and one light machine gun each. Squad 4 has three grenade dischargers. Hand grenades are usually carried by all personnel in these squads. Officers and sergeants are armed with swords and pistols. Japanese manuals stress the demoralizing effect of hand-to-hand fighting.

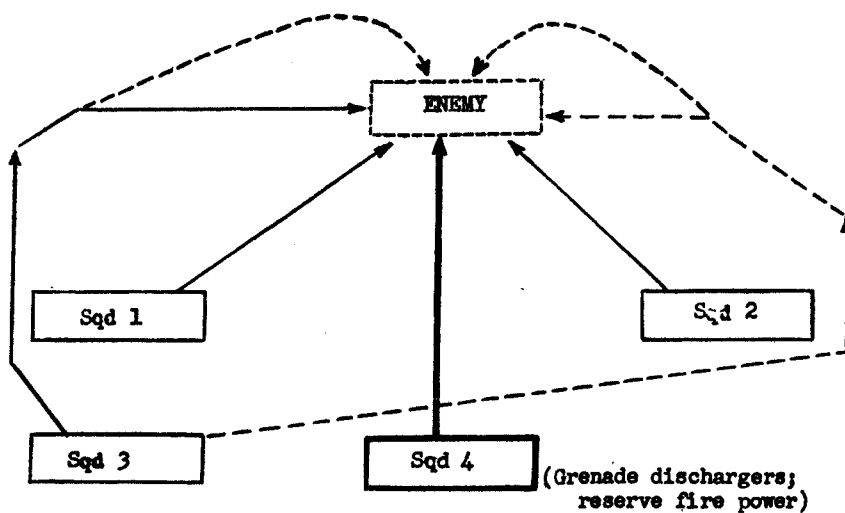


Figure 2. Usual formation of Japanese platoon for enveloping action.

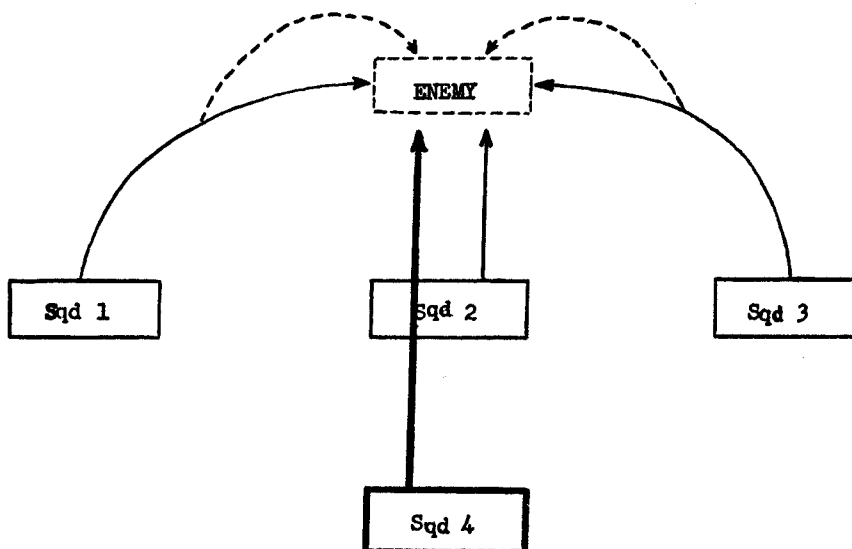


Figure 3. Another formation of Japanese platoon for enveloping action.

The light machine guns of Squads 1 and 3 support Squad 2 and pin the enemy down with light machine-gun fire. The three grenade dischargers in Squad 4 assist the fixing action with a barrage. The two flank squads (1 and 3) envelop. The envelopment may be of both flanks or of only one flank, in which case the squad not making the envelopment assists Squad 2.

The following quotation from a report indicates a typical Japanese action:

In one instance the Japanese pushed forward in approach formation. On encountering our outposts, they deployed, and at once began to find holes through which they filtered without hesitation, and, after penetrating the outpost line, went around our main body, later firing on it from the rear. The hostile main body apparently lost contact with the connecting files, for they marched directly into a machine gun, which they probably knew of, but thought had been put out of action.

(5) *Artillery*.—The Japanese have employed relatively little artillery, because of the jungle nature of most of the terrain over which they have fought. They used heavy artillery frequently in the Philippines, principally 240-mm. railway or siege guns, on the United States forts at the entrance of Manila Bay. Upon reaching open country in Johore State, opposite Singapore Island in Malaya, the Japanese began utilizing considerable artillery, a large part of which had been captured. In other than these instances, they have employed small pieces suitable for quick movement through the jungles with infantry. The denseness of jungle growth made use of high trajectory weapons the logical means of obtaining heavy

weapon concentration. Under these conditions, they resorted to 81-mm. mortars and occasionally heavy machine guns as substitutes for artillery. Whenever they did use artillery in the jungles, the Japanese made extensive reconnaissance to find the best gun positions available. They put down portable ramps to bridge ditches and soft ground and built gun platforms where it was necessary to fire from soft ground.

(6) *Engineers*.—Japanese engineers have shown considerable ability and ingenuity in bridging streams and repairing damaged bridges. They have utilized local material whenever possible. It has been reported that in some instances soldiers standing in streams have been used as bridge supports.

b. Armored Forces

(1) *General*.—So far, the Japanese have used armored forces against the United Nations in small numbers compared with the total number of troops engaged. Jungle growths and restricted terrain have no doubt been the reason, rather than lack of equipment.

Although the exact strength of the Japanese armored units is not known, reports indicate that a year ago there were four tank regiments and a large number of smaller units. Light, medium, and heavy tanks as well as one- and two-man tankettes are in use.

(2) *Organization*.—Light tanks are an integral part of streamlined divisions. Medium tanks are in non-divisional organizations as are the heavy tanks.³ Tank

³ Accurate details are not yet available on the organization of heavy tanks.

units are knit together not only by systematic organization but also by providing two-way radios to all tank commanders down to and including platoon leaders.

(a) *Divisional*.—Most of Japan's "streamlined" divisions have an organic light tank company. The company consists of a headquarters, a rear echelon, and four platoons of three tanks each. Three additional tanks comprise the headquarters and rear echelon. In addition, the rear echelon is believed to have half-track vehicles, motorcycles, and tracked trailers. The trailers are utilized to transport ammunition, rations, and fuel to the battle area. The divisional companies have included only light tanks and tankettes (called armored vehicles by the Japanese).

(b) *Nondivisional*.—The Japanese tank regiment, which is nondivisional, is made up of 52 light and 95 medium tanks, a total of 147. Each unit down to and including the company has, in the rear echelon, a service detachment which supplies ammunition, fuel, and limited maintenance. The rear echelons also probably include light armored and half-track maintenance and supply vehicles. Each medium tank carries four men, a commander, a machine-gunner, a cannon-gunner, and a driver. Organizational details of the tank regiment are shown in the diagram on page 26.

(3) *Tactics*.—The Japanese have employed small groups of tanks—from three to five—in direct frontal attacks to assist the forward advance of the infantry. The tanks have been withdrawn when the infantry has reached its objective. All these tanks are a light type except the leader, which is a medium. In Ma-

laya, sometimes these groups were composed in whole or in part of armored carrier vehicles with one medium tank used as the leading element. Clearing enemy

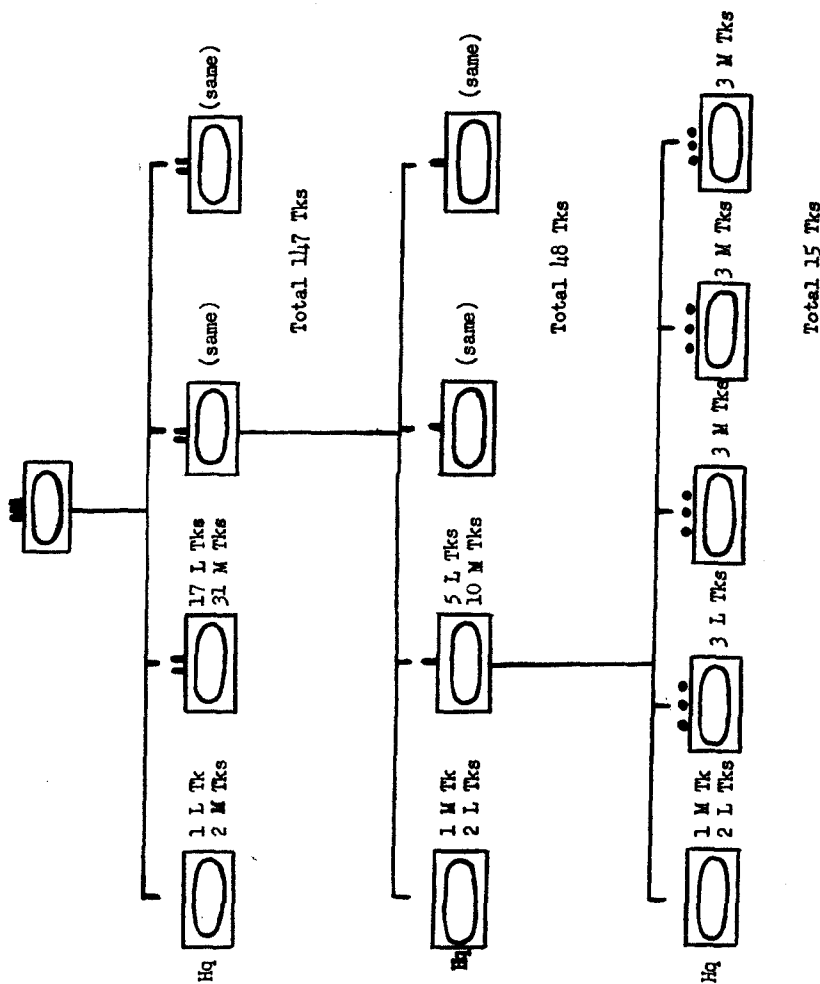


Figure 4. Organization of Japanese tank regiment.

troops and obstacles off roads and creating confusion among the defending troops were the usual missions assigned to these tank groups. The groups sometimes

attacked in as many as four waves. The leading wave sought, without stopping, to engage vehicles and personnel on or near the road, while the rear groups halted on the road and opened fire when opposition was encountered. However, none of the groups pursued the attacks a great distance from the road. Their fire usually was inaccurate, and casualties were light. After brief engagements the groups would move by roads deeper into opposition territory and engage other troops in a similar manner, particularly directing their efforts at troops in the rear, at artillery, at command posts, and at supply installations.

c. Bicycle Troops

(1) *General*.—Bicycle troops are organized separately from the infantry. To date Japan has employed only a comparatively small number of cyclist troops. Most of these were used in Malaya. Indications are that all bicycles utilized were confiscated from the natives and used only in movements behind the front lines.

(2) *Organization*.—The bicycle troops usually were observed in groups of 60 to 70.

(3) *Movement*.—No definite formation was kept in movement, but two or three were abreast and separated a few yards from the man in front. The cyclists traveled 8 to 10 miles an hour in daytime but appeared to be in more of a hurry at night. They also made more noise at night—as if they were somewhat nervous. About 1 in 10 carried a flashlight; about half of the flashlights were tied on the bicycles. The move-

ment of bicycle troops was not coordinated with motor transport except possibly with motorcycles. The latter were seen going in the same direction as the bicycles in nearly every case but at speeds of about 30 miles an hour. No one stood out among the cyclists as a leader, either by dress, position, or behavior, and it is believed that their officers rode on motorcycle combinations. No scouts were observed and security precautions appeared lax.

(4) *Equipment*.—East cyclist carried what appeared to be a rifle. The rifles—some of which were shaped as if they were automatic—usually were transported with the barrels forward below the horizontal bar of the bicycle frame. More than half of them were carried in khaki covers. No rifles were observed slung on the cyclists' backs and in no case was a rifle detached from a bicycle when the soldiers stopped for rest or to enter a house. No pistols, knives, submachine guns, or items resembling ammunition were observed. The average load on the bicycle, apart from the soldier, appeared to be 75 to 100 pounds. The load included packs, which invariably hung on either side of the rear carrier; a box or bag of some type on the carrier; a rolled, hoodless rain cape; and other equipment, including spare clothes.

d. Flying Columns

(1) *General*.—Fast, hard-hitting combat teams known as flying columns have been employed by the Japanese in China. They included tanks, armored

cars, motorized infantry, cavalry, engineers, and signal and medical personnel.

(2) *Purpose*.—The flying columns were designed primarily to make quick, effective surprise attacks on opposition forces of varying size. They made infiltrations, reconnaissances, and flanking and turning movements; they disrupted communications; harassed large formations; acted as the advance guard for the main body; and assisted the main body in difficult situations.

(3) *Composition*.—Although the strength of the flying columns varied according to the tasks performed, they generally were composed as follows:

- (a) 1 section of armored cars—
 - 1 lieutenant in command.
 - 25 enlisted men (approximately), including 1 sergeant as car commander and 1 corporal.
 - 4 light armored cars, each carrying 2 light machine guns.
 - 4 trailers.
 - 1 motorcycle, with attached sidecar.
- (b) 1 section of tanks (light or medium)⁴—
 - 1 lieutenant in command.
 - 30 enlisted men (approximately).
 - 3 tanks.
 - 1 motorcycle, with attached sidecar.
- (c) 1 squadron of cavalry (4 troops)—
 - Officers (number unknown but believed to be 5).
 - 165 enlisted men, including 2 sergeant majors, 1 noncommissioned gas officer, 1 noncommissioned veterinary officer, 1 noncommissioned supply officer, 2 buglers, and 1 medical orderly.
 - 155 horses (approximately).
 - 4 light machine guns.

⁴ Flying columns do not necessarily have tanks attached.

- (d) 1 company of infantry (3 platoons, with 1 platoon or more of heavy machine guns attached)—
 - 5 officers.
 - 189 enlisted men.
 - 12 light machine guns.
 - 129 rifles.
 - 159 bayonets.
 - 18 short rifles.
 - Grenade dischargers (number unknown).
- (e) 1 car section—
 - 1 lieutenant in command.
 - 15 drivers.
 - 15 assistant drivers.
 - 2 light machine-gunners.
 - 1 mortar-gunner.
 - 1 ammunition carrier.
 - 15 cars.
 - 1 machine gun.
 - 1 mortar.
- (f) 1 section of engineers, including 5 NCO's.

e. Pursuit

With aircraft lending effective aid, the Japanese have carried out vigorous pursuits of United Nations' forces. Reconnaissance planes located and photographed oil, food, and ammunition dumps and storage points in order that pursuit troops could later locate and confiscate the supplies.

The Japanese have been helped greatly in this phase of warfare by utilizing captured guns and supplies. Officers and ordnance personnel, schooled in the mechanics of various opposition equipment, particularly artillery, have been able to repair and operate this equipment immediately. Although the drivers of United Nations' vehicles in most cases removed the

distributors from motor vehicles before abandoning them, the Japanese often had usable spare distributors, obtained from similar disabled vehicles.

The Japanese, contrary to the usual tactics in the past, always displace usable captured armament and supplies to the front—not to the rear. For instance, captured field guns are trucked or towed forward with the pursuit until dumps of appropriate ammunition are reached, and then they are put into action. Instances have been related by field artillery officers where the Japanese used pieces from which the breech blocks had been removed. They undoubtedly found the blocks or used similar blocks taken from the same type of gun. Japanese infantrymen often discarded their own rifles in the pursuit, after using all their ammunition, and armed themselves with opposition rifles. The same was true in the case of machine guns.

Pursuit parties moved so fast in Malaya that at times they were able to cut both civilian and military communications and arrive in cities and towns before civil authorities knew of their proximity or had time to remove or destroy vital stores of supplies. Often Japanese tanks and trucks appeared at filling stations for fuel and water. These successes spared the Japanese considerable effort in obtaining supplies from the rear.

f. Antitank Defense

Little information has been received on antitank defense.

(1) *Antitank rifles*.—So far there has been no mention of the use of antitank rifles. In the few limited operations in which the Japanese have been forced to protect themselves against tanks, defended road blocks have been established.

(2) *Antitank guns*.—The use of a 80-caliber dual-purpose antitank gun has been reported.

g. Defensive

Although Japanese soldiers have been taught that retreats are “inglorious,” their training regulations indicate defensive tactics similar to those used by the United Nations. Positions are occupied in considerable depth. They consist of a number of defensive areas, each capable of all-around defense. Dummy positions are interspersed.

h. Deceptive Measures

Perhaps in no other military campaign in history has so much deception been used as in the current Japanese campaign. Deceptive measures employed by the Japanese to date include the following:

(1) Taking advantage of the difficulty in distinguishing the Japanese from Malaysians or resident Chinese by frequently dressing as civilians and hiding their guns until they could spring a surprise attack;

(2) Dressing in British and Dutch uniforms and steel helmets;

(3) Putting captured Indian soldiers as a screen between themselves and attacking Indian troops with orders to urge the Indian troops to hold their fire;

(4) Hiring civilians to drive private cars to bridges prepared for demolition so that the Japanese hidden in the car could shoot the covering party;

(5) Making noises imitating frontal fire to attract the opposition while lightly armed Japanese troops worked around the flanks;

(6) Employing intelligence personnel with advance guards to confuse British native troops by speaking out in Malay, Tamil, Hindustani, Gurkhali, English, or Dutch—depending on the circumstances;

(7) Exploding firecrackers in the rear of defending troops to give them the impression that they were being attacked heavily;

(8) Rapping bamboo sticks on hard objects to imitate machine-gun fire;

(9) Exposing soldiers in a swimming pool and at a nearby bar in Borneo to draw the fire of Dutch machine guns so that their positions could be determined;

(10) Calling out in Dutch for the whereabouts of the Dutch commander during a night attack and shooting the commander when he answered.

i. Fifth Column Activities

Japan laid the groundwork for Asiatic conquests with years of intense propaganda in China, Indochina, Thailand, British Malaya, Burma, India, the Netherlands East Indies, and other southwest Pacific islands in British, American, and Dutch possessions. Rivaling Germany's far-flung propaganda activities, Japan was estimated to have had over 200,000 paid and schooled professional agitators at work in the

above-named areas prior to the Japanese attack on the United Nations.

Until September 1941, the propaganda had been aimed mostly along cultural, educational, and political lines. Since then propaganda has been accelerated to arouse the natives against their governments so as to obtain their support for forthcoming military operations.

When Japanese troops first entered Malaya, in order to win over local support, they distributed Singapore money (printed in Japan) among a large number of natives. The same device (guilders, printed in Japan) was used in Borneo and other islands of the Netherlands East Indies. In addition, natives were told that the homes of the British and Dutch were theirs, and they were invited to move in and take them over or else to loot them of furniture and other valuables that the Japanese themselves did not want.

Reports of various Japanese fifth column activities since the war started disclose the following methods:

(1) Use of red-clothed scarecrows and arms pointing to defenses.

(2) Indication of the direction of targets by trampling or cutting arrows in rice fields.

(3) Pointing of banana leaves, washings, or planks to indicate motor transport parks or command posts.

(4) Dressing of civilians in occupied territory as British and Indian soldiers and their calling out to the British not to shoot.

(5) Furnishing of local food supplies.

(6) Use of fishing boats and lights to aid in landing operations.

(7) Indication of airdromes with strips of cloth or paint and by flashing lights.

(8) Acting as expert guides for Japanese troops.

(9) Supplying of information gathered before the war by local Japanese residents.

(10) Rendering of assistance as native officials.

(11) Natives in Burma cloaked themselves as priests or monks for the specific purpose of doing fifth column work—this was accomplished easily because of the loose requirements necessary to join the priesthood order of poongees.⁵

(12) Procuring of bancas and other small boats for Japanese infiltration parties which slipped down the west coast of Malaya.

(13) Tampering with air-raid warning systems to render them unworkable.

(14) Spreading of rumors among native troops.

(15) Maintaining a radio transmitter in Singapore throughout the Malayan campaign.

(16) Drawing up of airdrome plans to turn over to the Japanese—a Malay overseer at Alor Star airdrome, Malaya, was arrested with airdrome plans, signaling apparatus, and Japanese propaganda.

(17) Two coolies walking together, one wearing a red shirt and the other a white, indicated the proximity of opposing troops.

(18) Drink vendors on bicycles signaled to the Jap-

⁵ Also spelled *poonghies* or *poonghcees*.

anese with a flag, waving it twice and pointing to British troops after they had served the British free drinks.

(19) A German dressed in civilian clothes preceded Japanese patrols by 50 yards and engaged opposing troops in conversation while the patrols took up firing positions.

(20) Telephone operators acting as chief fifth columnists in the Kedah, Malaya, area.

(21) Use of rice, salt, and white paper on roads to denote proximity of troops.

(22) Aiding in the organization of the "Free Burmese Army."

(23) Members of Thakins antiforeign political party in Burma organized to resist the British by fifth column activities and to join the "Free Burmese Army."

(24) German missionaries in New Guinea turned out to be fifth columnists—they helped the Japanese through the jungles to contact Australian forces.

(25) Obtaining information direct from United Nations' airfields—possibly by transmissions from nearby undetachable short-wave radio sets⁶ to adjacent field transmitters and then to Japanese air headquarters.

(26) Dropping propaganda pamphlets from the air, and having Fifth Columnists distribute them even more widely during blackouts.

⁶These sets were believed to be small, portable transmitters of such low power that they were not detectable at the United Nations' airfields but of sufficient strength to be received by nearby field receivers. Messages received from the small sets were then relayed by more powerful field transmitters to Japanese Air Headquarters.

(27) Signalling to Japanese aviators by placing lights in hollow stumps where they could not be seen from the ground.

(28) Placing "puncture traps" on Burma roads to damage or delay United Nations' motor transports. The traps consisted of several sharp steel spikes, cut out of one-fourth-inch flat steel sheeting. The spikes were 6 inches long, with the upper 3 inches protruding from the road bed and camouflaged with mud, straw, or dried leaves.

Section IV. AIR FORCES

7. GENERAL

In their campaigns to date, the Japanese have used bombers, fighters, and reconnaissance planes to assist the forward elements and to "soften" opposition. Targets for their aircraft include troops and installations in the lines of communication and exposed elements of the combatant forces such as roadbound congested transport columns, and command posts.

The Japanese air force not only protects the Japanese land forces, their bases, their lines of communication, and their concentrations, but in every operation it also gives prompt, close, and sustained support and cooperation to the ground forces.

The task force commanders have full control over all their weapons, and the necessary aircraft for the task are just additional weapons for the commander to employ. The commander is presumed to know the proper use of his air weapons even as he knows the use of his infantry or artillery. The Japanese regard the plane as an indispensable weapon with which to assist military operations. It might be said that they look on it as an airmobile battery, or, in its reconnaissance uses, as a pair of flying, long-range binoculars.

Before committing his forces to battle, the Japanese army commander has large air formations assigned to him and placed under his direct command (men, officers, and planes). He, in turn, often delegates command to smaller air units down to regimental commanders.

When not rendering close support to the ground forces, Japanese air units perform independent missions.

A Japanese manual says: "It is not *cooperation* we should *seek*—it is *coordination* we must make *certain*."

8. ATTACK TECHNIQUES

a. Fighter Planes

Practically all Japanese fighter planes have been equipped with an extra, detachable gasoline tank which enables them to fly long distances. The tank may be dropped during combat to lighten the plane load.

Besides strafing the airdromes of the opposition, the Japanese consistently and thoroughly ground-strafe the perimeter of airdromes to a depth of 30 to 50 yards inside any surrounding trees and generally with incendiary bullets. This ground-strafing is never done without thorough reconnaissance and careful planning. Runways are avoided so that they can be used later.

Japanese fighter squadrons, upon entering combat, frequently divide into two sections, one section flying low to tempt the opposing planes to dive and the other remaining high to dive on the opposition aircraft.

Diving out of clouds in the initial attack on the

Philippines, Japanese fighters made a stern attack on the United States bombers and pulled out with a steep climbing turn, which offered the planes as good targets.

At Kota Bharu, four type 0 fighters, approaching in echelon formation at about 2,000 feet, peeled off into a steep dive to make an organized front-gun attack. The guns were fired from 1,500 feet and continued until the planes pulled out at low altitude. After the initial dive each plane appeared to act independently.

In another attack by 15 to 20 naval type 96 Mitsubishi seascouting fighters, some of the planes peeled off into a maneuver resembling a spin or aileron turn. They straightened out into a 70° dive with a very sharp pull out at about 1,000 feet. They dived a second time in a similar manner after gaining sufficient height.

In the Philippines, three Japanese 0 fighters used the following tactics on dispersed ground planes:

The fighters appeared from directly out of the sun at an altitude of not more than 300 feet. They opened fire immediately, dropping their noses a little and coming as low as 100 feet over the targets. After this first pass, the formation broke up and each plane selected a target and stayed with it, either circling after each run to come out of the sun or crisscrossing over the target. The attack lasted about 10 minutes.

The following tactics were used by nine Japanese 0 fighters against a formation of nine United States B-17E bombers:

Three of the Japanese fighters got on line in front of the bomber formation and made direct individual frontal attacks on the flight leader's ship while the

remaining six attacked the rear ships of the formation. Throughout the attack, which lasted about 20 minutes, these tactics were repeated without variation. When the bomber formation leader was forced out of position, the three fighters continued the attack on the plane which replaced the leader. The Japanese pilots broke off frontal attacks in various ways, sometimes rising over the bombers and sometimes ducking underneath. Only once did they come in very close. Although four of the nine attacking planes were shot down, the remainder continued the attack until the bombers reached a thick cloud cover.

In Malaya, Japanese army fighters used a diamond of four planes as a basic unit, while naval fighters employed a narrow-angled, unsymmetrical V formation of three or five planes. Often the formation leader pulled out when encountering opposing aircraft and took no part in the actual combat. Presumably he directed the other fighters by radio, with which most recent Japanese planes are equipped.

A common fighter-plane formation used for ground attack is a V of three planes flanked by echelons of two planes each—a total of seven planes. When no opposition is encountered from fighter aircraft, three of the four planes constituting the flanking echelons close in and form a second V behind the first, and the extra plane follows in a position of high-covering protection. If fighter opposition is encountered, it is met by one or both echelon pairs, while the V formation of three planes executes the planned attack against ground forces.

b. Bomber Planes

(1) *Horizontal bombing*.—The tactical unit for horizontal bombing consists of nine planes. This type of attack usually precedes torpedo bombing. The aircraft attack at a height of about 12,000 feet, in close line abreast, and drop their bombs simultaneously on signal.

(2) *Torpedo bombing*.—The tactical unit for this type of bombing also consists of nine planes. The usual tactics are for the formation to lose altitude gradually, out of gun range, and approach the target in a loose column, deploying into a wedge or ragged diamond formation for the attack. The torpedoes are loosed at an average distance of 1,500 yards from the target, although some were dropped at 300 yards. Altitudes at the time of dropping the torpedoes varied up to 300 feet. Only individual attacks were made and always with complete disregard for antiaircraft fire.

(3) *Dive bombing*.—The dive is shallow—to date the Japanese have made no vertical dives. In the attack on Hawaii, the angle of glide was between 45° and 50°. The bombers begin the glide at a height of 3,000 to 5,000 feet and follow each other until near the target before releasing their bombs and climbing steeply immediately afterwards. Targets are struck from all directions almost simultaneously. After releasing their bombs, the planes employ their machine guns against ground installations.

(4) *Heavy bombers*.—These operate in multiples of

nine, divided into subflights of three. Generally, station-keeping is good, although outside flights lose distance on turns. Sometimes the formation commander is in one of the extreme outside planes.

In approaching a target, twin-engined bombers usually have made a long straight run in close formation. Despite heavy losses from fighter or anti-aircraft opposition, they have been persistent in attacks.

Type 96 twin-engined heavy bombers used 500 to 1,000-pound bombs in high-level attacks on United States ships in the Netherlands East Indies area. Each plane dropped one and frequently two bombs on each run.

(5) *Medium bombers*.—These bombers, which fly at high altitudes, move in a V formation, each plane being separated by the width of two aircraft. Bombs are released at altitudes of 8,000 to 12,000 feet. High-altitude attacks are well synchronized with those of dive bombers.

(6) *Bomb delivery*.—In the Philippines, bombing attacks usually were made by nine planes in a V of V's formation with No. 2 and No. 3 V's 50 to 100 feet above the leading V. When the planes were within 7 to 10 miles of the bomb-release line, they changed to a slightly staggered formation of 1 V. Because of air superiority, the Japanese usually tested the wind drift with a parachute dropped from an observation plane, and made two or three practice runs before the actual bombing. On the bombing run the leader

rocked his plane just before reaching the point of bomb release, and all planes usually released their bombs simultaneously. The bombers were believed to be equipped with a mechanical device which opened the bomb racks at regularly-spaced intervals. The course of flight was changed immediately after delivery of bombs.

Japanese bombers began bombing Corregidor at a height of about 17,000 feet, but accurate antiaircraft fire forced them to a height of 27,000 feet.

(7) *Use of lights.*—In several instances, Japanese bomber formations have been observed to turn on lights during the approach and to turn them off at the bomb-release point. Why this was done has not been determined.

c. Destruction of Fallen Planes

The Japanese apparently seek to destroy completely any of their planes which have been shot down so that United Nations' experts will not be able to study construction details. Australian pilots at Port Moresby report that in each raiding formation the Japanese apparently detail one plane to dive-bomb and destroy planes which have been forced down. On one occasion a fallen plane was blasted with incendiary bombs.

9. PURSUIT

The Japanese use spectacular and unrelenting pursuit tactics against opposition aircraft as well as the ground forces. When the Royal Air Force planes re-

tired from Singapore to Jambi and Palembang in Sumatra, they were followed closely by Japanese air raiders who destroyed or crippled considerable opposing aircraft on the ground. When R. A. F. planes survived an enemy attack on the airdrome at Magwe, Burma, and then retired to Akyab, Burma, the Japanese again pursued relentlessly, destroying the planes on the ground.

10. NIGHT OPERATIONS

Thus far, Japanese night operations in the air have been negligible. The Japanese have done some bombing on moonlight nights and an occasional report has mentioned night-fighter interceptions. Currently, the enemy air force is to all purposes effective only in daylight, although it is believed that training for night flying has been, or will be, undertaken.

11. DECEPTIONS

(a) In Malaya, Japanese bombers blasted airdromes while accompanying fighters engaged numerically-inferior British fighters. The bombers flew out of sight until the British and Japanese fighters broke off their engagement and then returned to catch the British fighters on the ground refueling.

(b) In several instances Japanese planes flew high over airdromes to draw searchlights and antiaircraft fire, whereupon almost immediately a single fighter came in at low altitude with navigation lights on and

wheels down to strafe the airdromes. The strafing plane then climbed fast into the nearest cloud.

(c) A Netherlands East Indies plane flew low to investigate some Japanese launches being towed along the northeast coast by "natives" who were waving a white flag. When the plane appeared close, it was shot down by light antiaircraft concealed under the awnings of some of the boats.

12. AIRCRAFT DISPERSAL

a. General

According to reports of most observers, the Japanese generally are vulnerable in their dispersal of planes on the ground. Reports from the American Volunteer Group in China are unanimous that the Japanese crowd their planes on their main air bases, such as Hanoi, Bangkok, Shieng-mai, and Rangoon. Planes have been observed along the runways of these bases almost wing tip to wing tip, bombers on one side and fighters on the other.

b. In the Philippines

At one field in the vicinity of Manila the Japanese used a unique system of dispersing planes on the ground and protecting airdrome installations. They constructed over 40 landing strips (with hand labor and graders) some distance from the central field. Two or three planes and a minimum number of oil drums and other servicing facilities were allotted to each strip. Some of the strips were located as far as

2 miles apart, and hangers and repair facilities were located a considerable distance from runways at main fields. Such a dispersion permitted large numbers of Japanese fighters to take off easily while opposition bombers were concentrating on two or three planes located on one particular strip.

Section V. PARACHUTE FORCES

13. GENERAL

In September 1941 the Japanese were believed to have had three battalions and two companies of parachute troops. In only one instance, at Palembang, Dutch Sumatra, have the Japanese used parachutists on a large scale.

14. ORGANIZATION

Each battalion consists of a headquarters staff and supply section (not air-borne) and three companies. The total strength of a battalion is about 670 men. (See organization chart on page 49.)

15. QUALIFICATIONS AND PERSONNEL

All have to attend special courses in foreign languages and map reading. All officers are drawn from the air arm and must not be over 28, with the exception of the battalion commander, who may not be over 35. The battalion commander usually is a colonel. Enlisted men must not be over 25.

16. EQUIPMENT

Officers and enlisted men are provided with special clothing which includes fur-lined jackets, trousers, and

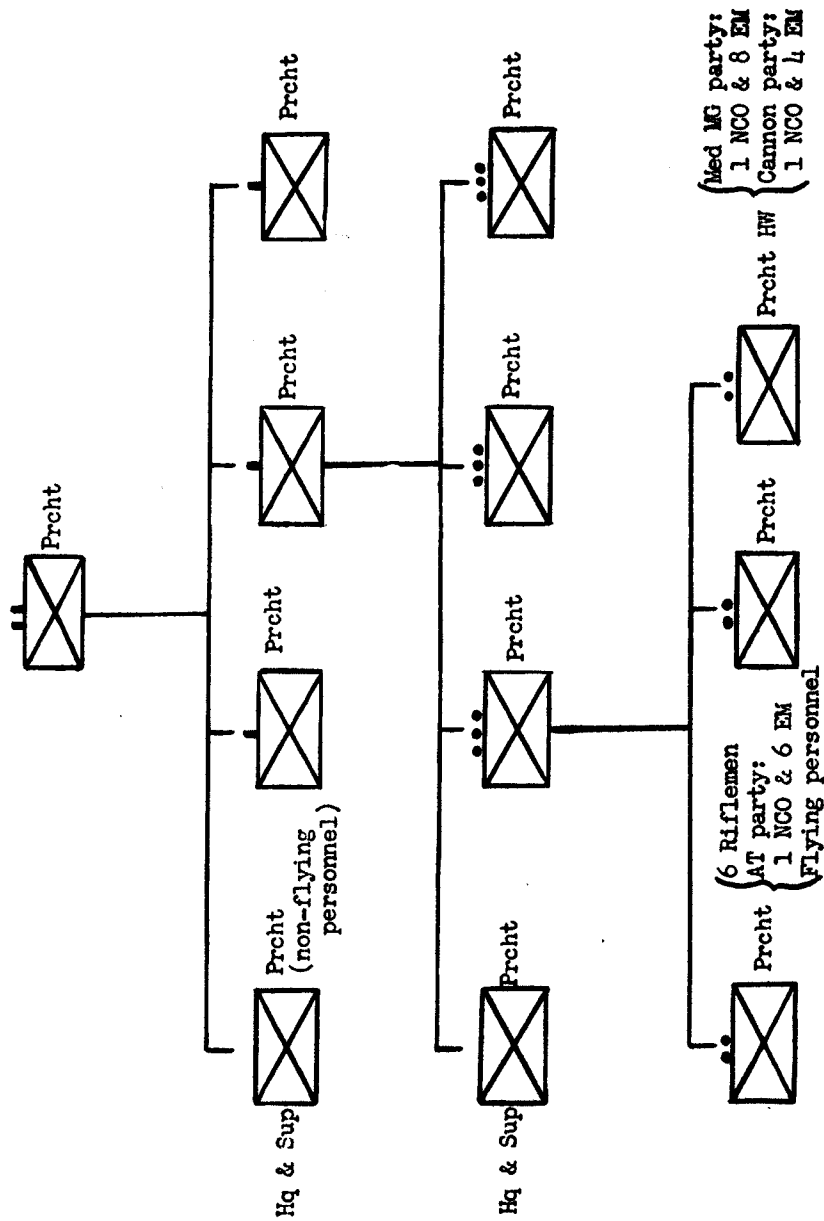


Figure 5. Organization of Japanese parachute battalion.

a hood with goggles. Officers also carry an electric torch and a wallet (brief case?) containing maps and writing material. Each enlisted man carries a barracks bag containing the following:

Complete change of underwear;
Spare pair of shoes;
Rations for 3 days, including rice, canned fish, canned meat, and tea.

17. ARMAMENT

Each battalion is believed to include approximately the following:

Revolvers	360
6.5-mm. machine carbines (probably similar to submachine guns)	300
Hvy MG's	42
13-mm. AT rifles	55
Arisaka ¹ "cannon"	9

18. PALEMBANG OPERATIONS

A total of about 700 Japanese parachute troops were dropped in an area about 12 miles square in the vicinity of Palembang on the morning of February 14, 1941. These parachutists had only light equipment, which included some motors and machine guns. They were dropped from about 70 transport airplanes.

Immediately upon landing, two groups of about 200 men each were formed for attacks on the two

¹ It is not definitely known what type of weapon this is. Oerlikon 20-mm. cannon are known to be in use in the Japanese army. An 80-caliber dual-purpose antitank gun also has been reported.

large oil refineries south of the Moesi River near Palembang, and another group of about 300 men was formed to attack the Palembang Airport, northwest of the city.

The Japanese plan was to seize and occupy the refineries, prevent their destruction, and to capture the airport. The plan failed and practically all of the parachutists were killed by defending Dutch and British forces. The next day, however, a strong Japanese landing force proceeded up the Moesi River and captured Palembang, but by this time both refineries had been destroyed and the airport considerably damaged.

The failure of the Japanese attack can be ascribed to the relatively small size of the Japanese force and its lack of immediate support, the vigorous resistance by the Dutch and British defenders, and the rapidity and efficiency of the defenders' demolition work.

Section VI. COMMUNICATIONS

19. AIR-GROUND

Through air reconnaissance coupled with close radio communication with the advanced elements of the ground forces has enabled the Japanese frequently to out-maneuver their opponents. This was possible because of their air superiority. Company commanders of ground forces carry portable radios with attached earphones. The radios are strapped to their chests like gas masks in the alert position. Supporting aircraft notify the companies when they should advance or halt. The company commander, in turn, waves a flag to planes when he moves forward and when he orders a halt. Such portable sets also are used to maintain continuous liaison with adjacent companies, for communications during beach landings, and for communications from points in rear of United Nations' lines to Japanese headquarters. They have an effective range up to 35 miles. All of Japan's new planes are equipped with modern two-way radios.

20. GROUND

Signal communications from the division downward follow the general orthodox system of using radio, motorcycle, and bicycle messengers and occasionally visual signaling. Extreme simplicity characterizes the

operation of the system—short mission orders, direct oral orders, and flag signals. The regimental radio communication system usually extends down to company headquarters. Each company commander has a pool of runners for communication down to the platoon. Within the platoon a noncommissioned communications officer maintains contact between squads and the platoon, either orally or by use of runners.

All Japanese commanders' tanks down to the platoon are equipped with two-way radios.

Small armored motor launches are used to maintain intercommunications during landing operations.

21. EQUIPMENT

Signal equipment conforms generally to that indicated in TM 30-480, *Handbook on Japanese Military Forces*. Radio equipment is well made and bears dates showing storage since 1935. All radio sets are operated by dry battery and are ruggedly constructed. An aircraft set functioned well after having been dropped more than 2,000 feet with no repair except the replacement of its vacuum tubes. One captured 60-pound portable, all-wave receiver operated very satisfactorily.

22. RADIO JAMMING

Units for jamming are included in each signal regiment. Most jamming to date is reported to be on broadcast frequencies. However, jamming of tactical frequencies in the range from 5 to 8 megacycles and of point-to-point frequencies as high as 15 mega-

cycles has also been reported. Jamming on point-to-point circuits was readily overcome by continuing traffic on the jammed frequency, as well as on another frequency. Methods of jamming used are the following:

- a. Transmission of dummy messages and call signs from a tape recording on a frequency corresponding to that to be jammed;
- b. Transmission of a carrier wave of frequency corresponding to the frequency to be jammed and modulated by raw alternating current;
- c. The use of a howler or fluctuating continuous wave carrier to interfere with radiotelephone transmissions.

In general, it may be said that the Japanese jamming efforts were unskilled and ineffectual.

23. CODES AND CIPHERS

In general, Japanese codes are of the book type with one-time deciphering tables. Transmissions by radio of bearings from ground stations to aircraft on bombing missions are generally in the clear. Sometimes the Japanese use a simple three-letter code, which is readily broken. This code is used for economy, not for security.

24. RADIO INTELLIGENCE

The efficiency and accuracy of intercept units is indicated by Japanese attempts to masquerade radio stations as those of their opponents, in which attempts they used procedure signs derived from intercepted messages.

Section VII. NIGHT OPERATIONS

25. GENERAL

The Japanese put considerable stress on night operations. At night they use much closer formations than during the day in order to prevent loss of contact. Often they dig individual slit trenches for use during the night, with sentries usually posted within a radius of 50 to 150 yards of the bivouac. To surprise and confuse the opposition is one of the major night objectives, and this result is gained by silent infiltrations around the flanks and between defense areas. Frequently the Japanese crawl great distances at night to a point where they can leap upon the opposing forces before the latter are able to take action.

26. CONDUCT OF THE ATTACK

Preparatory to some night attacks, small patrols were sent out during the day to locate the approximate positions of the opposition, particularly those of heavy weapons. In Dutch Borneo, for example, the Japanese exposed men during the daytime to draw the fire of Dutch machine guns so that their positions could be determined for the night attack. After get-

ting information on these positions, the Japanese sent out additional small patrols early at night to determine more exactly the Dutch defensive locations.

After the patrols returned, the night attack began. Strong patrols, preceded by small guide groups which cut and rolled back barbed wire and removed other obstacles, advanced in extended order toward the opposition. Meanwhile, the Japanese hit on hard objects with bamboo sticks and made vocal noises in imitation of machine-gun fire in order to draw the fire of the Dutch so that their positions could be ascertained definitely. At the same time, the deceptive noises caused native troops to become panicky—a result which the Japanese probably expected.

Once having located the defending machine-gun positions, some of the Japanese crawled silently to the locations and disabled the crews with knives and hand grenades. One Dutch stronghold of 25 men was overcome without a shot being fired. Other Japanese, meanwhile, crept up to rifle troops and disarmed them with jiu jitsu tricks. Some of the defenders were able to escape by kicking away the hands that clutched them. Many casualties resulted from oral orders given by Dutch officers, for the Japanese, trained in the Dutch language, overheard the orders and shot the officers. In several instances some of the Japanese spoke out in Dutch and asked for the commander who, upon answering, was shot. When the Japanese had neutralized the Dutch outer defenses, they sought to penetrate further with strong patrols.

After some of these initial night fights in Borneo they withdrew 500 to 1,200 yards, and Japanese naval guns bombarded the defending positions the next day while the infantry, except for normal patrol duties, stayed inactive.

Many of the Japanese had copies of all the Dutch secret maps, and before landing they apparently had planned their attacks thoroughly.

Section VIII. CAMOUFLAGE

27. GENERAL

The Japanese have made full use of camouflage, using nets for personnel, horses, and equipment and adding jungle foliage to complete the job.

28. FOR PERSONNEL

Each soldier has body and head nets, either or both of which may be worn, according to circumstances. The nets are made of a greenish-colored straw fiber cord or ordinary twine with a square mesh slightly less than 2 inches in size. The body net is 1 by 1½ yards, and the head net fits snugly over a cap or metal helmet.

29. FOR MACHINE GUNS

This net is made of heavier material than those already mentioned, and it has a slightly larger mesh and is of the same color.

30. FOR ARTILLERY

Similar in texture to that of the machine gun, the artillery net is large enough to cover the piece and

its personnel. The net is attached to the ends of poles or other convenient supports at a height sufficient to enable the piece to be operated unhindered.

31. FOR VEHICLES

Vehicles usually are camouflaged with paint and local vegetation, and sometimes they are covered with nets. Armored force vehicles normally are painted irregularly in indeterminate shades of khaki, yellow, brown, and green. Some of the ordinary motor trucks are painted like the armored vehicles, though usually they have been of a sandy khaki color.

32. FOR AIRCRAFT

Camouflage of aircraft is practiced generally and apparently with good effect. Many fighter planes are painted jet black. Type 96 heavy bombers frequently have been camouflaged with irregular curling lines of light gray and light green. Type 97 reconnaissance planes have been observed painted a dark gray.

Section IX. SUPPLY

33. GENERAL

The Japanese supply system for jungle warfare is marked by simplicity. Impedimenta have been lightened, thus enabling troops to move fast and with great ease. In all of their fighting the Japanese have carried simple, compact rations; light, small-caliber arms and ammunition; and light clothing; and they have employed a minimum of transportation. In many instances the transportation for units as large as a company was carried out by natives impressed into service as carriers or by fifth columnists.

34. FOOD

Each Japanese soldier usually carries on his person sufficient food to sustain him for 5 days in the field, and some who infiltrated have fought for a week without recourse to food or ammunition supply trains. All have shown marked ability to live off the country; in fact, captured Japanese orders point out the necessity for this in order to conserve regular supplies. In some instances individuals and small infiltration units killed and cooked dogs, goats, and other small animals

to supplement their emergency rations. The 5-day emergency ration includes:

- a. One-half pound of hard candy;
- b. One can of coffee;
- c. One package of concentrated food;
- d. Vitamin pills;
- e. One package of hardtack;
- f. One 5-inch-long sack of rice.

Each soldier is responsible for his own cooking, but generally the men of a squad cook on a cooperative basis. No special cooking stove or other cooking apparatus is carried. Often food is cooked in the morning to last for the day. Sometimes only rice and salt are available. Sugar, considered a luxury, is procured locally. Looting is condoned.

When men on the front lines are pinned down for considerable periods, ration details follow the simple expedient of tossing them rice balls wrapped in straw.

35. WATER

Normally this is carried to the front lines in large canteens strapped on the backs of supply-unit soldiers. In addition, for refilling the canteens of men in firing positions, some soldiers are individually equipped with a fairly large-sized water-bag having a small hose attachment. The arms of all these carriers are free to help them over rough terrain or through jungles. For the purpose of purifying water, each soldier carries a miniature listerbag, shaped

like a three-fingered glove. He also carries chlorine for purifying his drinking water.

36. MEDICINE

The individual soldier carries quinine, which he takes to prevent malaria, and laxative and digestive pills. Japanese medical personnel also have used the leaves of the chirata plant (found in southern Asia) to combat malaria. They have used Nepalese herbs to prevent dysentery and various tropical diseases.

37. AMMUNITION

This is carried in boxes as shoulder packs, thus leaving the carrier's arms free for negotiating difficult terrain and permitting greater freedom of action under fire.

Section X. EQUIPMENT¹

38. INFANTRY

a. Pistols

The Japanese have two types of pistols. One, known as pattern 26 (1893), is described in the *Handbook on Japanese Military Forces* (TM 30-480). The other, known as the 8-mm. 14 type, was first observed in the Malayan campaign.

b. Machine Guns

The Japanese are using two types of machine guns, a light and a heavy gun. Both are improvements over similar equipment adopted several years ago.

(1) *Light type*.—This gun was designed to replace the Nambu light machine gun, Model 1922.² First observed during the Malayan campaign, it is known as Type 96, and is patterned after the French Hotchkiss light machine gun, although it incorporates several

¹ Notes on Japanese equipment in this section are supplementary to information given in TM 30-480 (*Handbook on Japanese Military Forces*) and include modifications and changes noted by observers of the United Nations.

² For details of the model 1922 gun, see TM 30-480.

features of the British Bren gun. It has a sling, attached to the butt stock and to the gas-cylinder bracket, for the purpose of carrying the weight from the shoulder. This feature enables the gun to be fired from a position generally used in operating a submachine gun, and it is believed that the weapon may have been referred to erroneously as a "Tommy" gun in previous reports on Japanese warfare. "Tommy" guns are not believed to be part of Japanese organizational equipment. However, it is possible that a limited number, purchased from foreign powers, may have been scattered among advance units fighting in the jungles.

The light machine gun is gas-operated, magazine-fed, and air-cooled, and may be fired automatically or semiautomatically. It has a carrying handle connected in front of the magazine, a bayonet attachment, and a bipod mount. The bipod has two positions, either folded or perpendicular to the gun barrel. The bipod has no adjustment for height. Other characteristics include the following:

Weight.....	19.18 lbs.
Weight of barrel.....	5.83 lbs.
Length, over-all.....	42 in.
Caliber.....	6.5-mm. (0.256 in.).
Rifling.....	4 grooves, right twist.
Muzzle velocity.....	2,400 ft. per sec. (approximately).
Cyclic rate of fire.....	550 rounds per min. (approximately).
Bipod mount.....	16 in. high.
Magazine capacity.....	30 rounds (approximately).

(2) *Heavy type*.—The heavy machine gun, 7.7-mm. (0.303 in.), was designed to replace model 3 (1914),

which was 6.5-mm. caliber.³ It is of the Hotchkiss type and is air-cooled. The gun is mounted on a cross-head stand which is supported on collapsible tripod legs. The height of the stem can be adjusted. A special mounting is provided for using the gun against aircraft.

The gun and tripod usually are transported on one horse. Another horse carries four boxes of ammunition. The boxes are of two sizes, one having a capacity of 450 rounds and the other 600 rounds. The gun can fire 3,000 to 3,500 rounds continuously before becoming overheated.

Other characteristics of the gun are as follows:

Weight of gun.....	61.6 lbs.
Weight of tripod.....	60.5 lbs.
Length of gun.....	43 in.
Length of bore.....	25 in.
Rifling.....	4 grooves, right twist
Life of barrel.....	100,000 rounds (approximately)
Muzzle velocity.....	2,700 ft. per sec.
Cyclic rate of fire.....	450 rounds per min.
Maximum effective rate of fire.....	200-250 rounds per min.
Maximum range.....	4,587 yds.
Most effective range.....	850 yds.
Traversing angle.....	360°
	(approximately 35 ° graduated in mils)
Maximum angle of elevation.....	11°
Rear sight.....	Graduated from 300 to 2,700 meters

c. Mortars

At least two types of mortars, possibly three, have been used by the Japanese to date. It is known definitely that they have been using an 81-mm. mortar,

³ For details of the model 3 gun, see TM 30-480.

similar in many respects to the United States 81-mm. mortar, and a 90-mm. chemical mortar. The British reported the capture of a 125-mm. mortar in Burma, but no details have been received.

(1) *81-mm.* This mortar has the following characteristics:

Range—328 yds. with 7.2-lb. bomb; 1,312 yds. with 14.3-lb. bomb.

Weight—129.2 lbs.

(2) *90-mm.* This chemical mortar has the following characteristics:

Maximum range—4,155 yds.

Minimum range—612 yds.

Weight of bomb, including a chemical filling—11 lbs. 10 oz.

Weight of weapon—350 lbs. 8 oz.

Propellant—apparently a ballistite cartridge; it has six charges.

d. Grenades.

Two types of hand grenades, both of cylindrical shape, have been used extensively by the Japanese. One is known as the 91 type and the other as the 97 type. The 91 type has a time fuze of 6 to 7 seconds. The fuze is ignited by tapping it sharply on some hard surface after removal of the safety pin. The 97 type is detonated by the percussion created when the grenade strikes its object.

In addition, it is reported that some use has been made of a hand grenade of the “potato-masher” type—a cylindrical cast-iron pot which is 2 inches long, 2 inches outside diameter, and $1\frac{1}{2}$ inches inside

diameter. It is open at one end and closed at the other. Inserted in this shell is a charge consisting of 2 ounces of lyddite. A 5-inch-long wooden handle is screwed to the top of the iron cylinder. The grenade weighs about 1 pound, 3 ounces.

A gas grenade also has been developed by the Japanese, but, as far as is known, it has not been used. The gas used is hydrocyanic acid, which is classified as a casualty agent. Tests conducted with duplicates of the Japanese grenade indicate that a tank hit by one of them at vulnerable openings would be filled with a concentration of the gas 20 times the amount necessary to kill the occupants unless they were wearing adequate gas masks. The gas, which has a characteristic odor of bitter almonds, is highly volatile and is not considered very dangerous outdoors or in a large open space. The grenade, according to information found on prisoners, is designed for use against tanks and pillboxes. It is not possible to get a high concentration of the gas inside a tank unless the grenade strikes at or near an opening. The grenade consists of about 1 pint of the acid in a round flasklike glass container. Upon impact the container breaks and the fluid acid vaporizes quickly. The M4, M8, and M9A1 canisters of service gas masks issued to United States troops give protection if the mask has been properly fitted to the wearer and is worn at the time a grenade of this type breaks. Canisters of the gas masks should be replaced as soon as possible after the attack.

e. Grenade Discharger

A grenade discharger, known as the 10-year type, model 1921, was used by the Japanese in the Malayan campaign. This type is of 50-mm. caliber and has a range of from 65 to 250 yards. It has a smooth-bore barrel 10 inches long and weighs 5½ pounds unloaded. The discharger is muzzle-loaded and is fired by a striker which is operated by a lever outside of the discharger body. The weapon is fired from the ground, where it rests on a small base plate. The grenade fired from it weighs a little less than 1 pound.

f. Antitank Bombs

The Japanese are believed to have three types of antitank bombs. One consists of a soda-pop bottle filled with gasoline and fitted with a fuze and stopper. Another has a magnetized metal covering, hemisphere-shaped, and sticks to a metal surface. It explodes 5 seconds after the safety pin has been removed. The third type, very similar to the second, consists of a metal disk, to the outer edges of which small magnetized explosive charges adhere. It also explodes after 5-seconds' contact. The charges can be utilized individually in much the same fashion as hand grenades are used.

39. ARTILLERY

a. General

Before the present conflict the Japanese were known to have numerous types of artillery (see TM 30-480).

At least one new type of field artillery—possibly three—has been reported since the war began. Reliable sources credited the Japanese with using an 88-mm. howitzer in the Philippines and a 77-mm. howitzer in Burma. However, no details have been received to confirm their existence or use.

b. New Field Piece

The Japanese are known to have a new split-trail field gun designed primarily for use against tanks. The gun is believed to be 75-mm. It has muzzle brakes and pneumatic tires, and the trails have driven spades to stabilize the piece for firing. The estimated range is 10,000 yards. The gun closely resembles the French Schneider field gun and may have been purchased from the French.

c. 240-mm. Gun

In the Philippines the Japanese used 240-mm. railroad guns—they were known to have possessed 30 of these. The guns are adapted to transportation on either standard or narrow-gauge railroads.

A 240-mm. shell recovered in the Philippines had the following characteristics:

- (1) Projectile casing—manufactured in Hiroshima, 1941; base not streamlined; narrow rotating band near the base;
- (2) Projectile filling—TNT;
- (3) Weight—approximately 440 lbs.;
- (4) Fuze-base type, made of brass.

d. 20-mm. Antiaircraft Gun

This gun was manufactured origally by the Oerlikon Arms Co., Switzerland. Its characteristics are as follows:

Diameter of bore.....	20-mm. (.78-in.).
Weight of gun in action..	836 lbs.
Length of barrel.....	45 in.
Muzzle velocity.....	2,720 ft. per sec.
Maximum h o r i z o n t a l range.....	5,450 yds.
Maximum vertical range..	12,200 ft.
Weight of projectile.....	55 lbs.
Practical rate of fire.....	120 rounds per min.
Elevation.....	10° to 85°.
Traverse.....	360°.

e. 75-mm. Antiaircraft Gun

This gun, model 1928, is an improvement over a similar weapon, model 1922. Its characteristics are as follows:

Weight.....	5,390 lbs.
Muzzle velocity.....	2,450 ft. per sec.
Maximum h o r i z o n t a l range.....	15,200 yds.
Maximum vertical range..	32,800 ft.
Practical rate of fire.....	15 rounds per min.
Weight of projectile.....	14.3 lbs.
Elevation.....	0° to 85°.
Traverse.....	360°.
Length of barrel.....	10 ft. 11 in. (approximately).
Transportation.....	Apparently tractor-drawn.

40. ARMORED VEHICLES

a. General

The Japanese have more than a dozen models of tanks,³ some with only slight differences, and they appear to be concentrating on five main types, namely: tankettes (or small armored reconnaissance vehicles), light tanks, cruiser tanks, heavy medium tanks, and light amphibian tanks. These are modifications of earlier models, and they have incorporated features from United States, British, French, and Russian types. Some of the tanks are said to be fitted with airplane engines, giving a high power-weight ratio.

b. Types

The following types of Japanese tanks have been encountered since the start of the current war:

(1) *Tankette*.—This is a light-tracked armored vehicle with one machine gun mounted in a turret. It weighs 3 to 4 tons and has two bogies and four rubber-tired wheels on each side. The crew consists of a driver and a machine-gunner. Late models of this tank are believed to be amphibian.

(2) *Light tank (model 35)*.—This type weighs 7 tons, and carries one 37-mm. gun and two machine guns. One machine gun is located forward in the hull and the other aft in the turret. The 37-mm. gun fires armor-piercing shells. The tank has four bogie wheels, in

³ For additional information on Japanese tanks, see tables on pages 4 and 5 of Information Bulletin No. 8, M. I. S., *Notes on Japanese Warfare*, and TM 30-480.

pairs, mounted in two bogies and fitted with thick, solid-rubber tires. The bogie wheels are about the same size as the front and rear sprockets. They are not protected by skirting. The track is supported at the top by two rollers. The crew probably consists of four: a driver, a turret gunner, and two machine-gunners. The length of the tank is roughly estimated to be 15 or 16 feet and the width about 7 feet.

(3) *Medium tank (cruiser tank)*.—This type, manned by four men, weighs 15 tons and is armed with a 47-mm. gun and two machine guns. It has $\frac{1}{2}$ -inch armor on the sides and 1-inch armor on the front plate and turret. The turret has a 360° traverse. The tank has six bogie wheels, evenly spaced and slightly smaller than the front sprocket and rear idler. The wheels have thick solid rubber tires but no protective skirting. The tanks make no more noise than a large used truck. Their tracks are supported at the top by three rollers. The front and rear rollers have flanges or rims to prevent the tracks from slipping off, but the center roller has no outside flange and is hardly visible from a distance. The maximum speed is believed to be about 25 miles per hour. The length of the tank is believed to be about 22 feet and the width about $8\frac{1}{2}$ feet. A prominent feature on at least some of these is a circular handrail around the top of the turret to enable the tank to carry about 10 extra men in a field emergency.

(4) *Flame-throwing tank*.—In Malaya, the Japanese had a flame-thrower in an Ishi-108 tank, which is believed to weigh 38 tons. Besides the flame-thrower,

the tank carried two 37-mm. guns and two machine guns. There was no report of this tank's having been used in combat.

(5) *Tank trailer*.—This is a small tracked vehicle with one pair of bogie wheels on each side. The suspension is of the rocker-arm type, similar to that used on Japanese tanks. The trailer, towed by various types of armored vehicles, is utilized to transport ammunition and various other types of supplies. The capacity load of the trailer is about 3,000 pounds.

(6) *Armored cars*.—Although several old types of armored cars are still in use, the type generally employed by the army is the Sumida six-wheel car-trolley, which is armed with one machine gun and has seven rifle or light automatic slits. By changing the wheel rims (which takes only 10 minutes), the car may be transformed into an armored trolley for running on railways. Railway guard troops use the vehicles, but to what extent is not known.

41. BOATS AND SHIPS

a. Special Transports

The Japanese have developed a special type of transport to carry troops and small landing craft. The transports have sliding or rolling doors on their sides, permitting landing craft berthed on rollers to be rolled into the water fully loaded with men and equipment. At least some of the transports also have rear slide hatches, or ramps with which to load and unload heavy equipment.

b. Landing Craft

Six types of these have been developed. Most of them are featured by double keels (for stability and strength) and by armored bows which can be dropped to permit field guns and small tanks to be run off the boats onto the beach. The armored fronts are capable of stopping 50-caliber bullets, but 30-caliber fire will penetrate the sides. The different types and some additional characteristics of the boats are as follows:

(1) *Type A*.—This is a large, open boat on the bow of which is a landing ramp which falls forward onto the beach, thus enabling guns to be wheeled off. The engine and coxswain usually are protected by bullet-proof plating. It is used by main landing forces. The approximate overall length of the boat is 50 feet and the length at the water line is 41 feet. The length of the beam is 12 or 13 feet. The boats are propelled by low-speed two- or four-cylinder gasoline or Diesel engines and attain a speed of about 10 knots. It is estimated that the boats can carry 110 to 120 fully-equipped men.

(2) *Type B*.—This boat, small and of open type and holding 50 to 60 men, is used by the initial covering party. It has an over-all length of 20 to 40 feet and is powered with a two- or four-cylinder gasoline or Diesel engine. Only some of the boats have bullet-proof shields and light machine guns in the bow.

(3) *Type C*.—This is an armored motor launch used for close support, reconnaissance, and mainte-

nance of communications. It is approximately 40 feet long and has a beam of 12 to 13 feet. The boat, constructed of steel plate, is believed capable of attaining a speed of 15 knots.

(4) *Type D*.—It is used solely as a towboat, supplementing Type A. The boat has an approximate over-all length of 30 feet and a beam of 10 feet. It is constructed of wood, similar to a standard motor launch.

(5) *Type E*.—This is an airplane-propeller-driven boat, about 50 feet long and 10 feet wide, which was designed for use in shallow or weed-infested water. About 10 feet of the forward underwater body rises above the water when the boat is going full speed. The draft at light load appears to be not over 2 feet.

(6) *Type F*.—It is constructed of steel plates and is of two sizes—30 feet over-all and 40 feet. It has a beam of 12 feet and a speed of about 9 knots.

c. Motor Torpedo Boats

The Japanese were reported several months ago to be building 70 motor torpedo boats. Some of them undoubtedly have been completed. Characteristics of the boats are as follows:

- (1) Length: 32 ft. 6 in. to 49 ft.
- (2) Beam: 6 ft. 6 in. to 9 ft. 9 in.
- (3) Body: Flat bottom, steel frame, wood planking.
- (4) Motor: Radial-cooled aircraft engine with reduction gear and angle drive up to 400 ground-maximum horsepower.
- (5) Armament: 2 torpedo tubes mounted on each side, 4 depth charges, 1 machine gun.
- (6) Crew: 3 or 4.

- (7) Speed : 52 m. p. h. or over.
- (8) Endurance: 10 hrs. at full speed if about 1,150 gals. of gasoline are carried.

d. Tonnage Calculations

Various tonnage calculations for sea movement of Japanese forces, armament, and supplies have been estimated to be as follows:

(1) *Personnel and horses*.—The tonnage allowances for troops and horses vary according to the length of the voyage, route taken, and season of the year. In each case a margin is allowed for a certain quantity of stores, coal, ammunition, and vehicles.

	<i>Long sea voyages</i>	<i>Short sea voyages (3 days)</i>
For each man.....	5 tons	3 tons
For each horse.....	10 tons	9 tons

(2) *Matériel*.—For every 1,000 tons of Japanese shipping, various vehicles (loaded), tanks, and other equipment can be shipped as shown in the below:

Trucks (3-ton).....	12
Trucks (30-cwt.—approximately 1½ tons).....	23
Trucks (1-ton).....	40
Tractors (field artillery).....	50
Cars.....	40
Ambulances.....	30
Howitzers (105-mm.).....	50
Infantry guns (37-mm.).....	100
Tankettes.....	30
Light tanks.....	25
Medium tanks.....	15

(3) *Ship dimensions in relation to tonnage*.—The length, breadth, and draught of Japanese vessels in relation to tonnage is given in the following table:

<i>Draught</i> <i>feet</i>	<i>Length</i> <i>feet</i>	<i>Breadth</i> <i>feet</i>	<i>Approximate</i> <i>tonnage</i>
15	230	33	1,000
19	280	39	2,000
21	330	44	3,000
23	360	48	4,000
25	390	51	5,000
26	420	53	6,000
27	440	55	7,000
28	450	57	8,000
28	460	58	9,000
29	470	59	10,000

42. AIR FORCE⁴

a. Aircraft

Until the present time, the Japanese have used five types of bombers, five types of fighters, four types of floatplanes, and one type of flying boat, as follows:

(1) Bombers:

Navy Type 96, heavy
 Navy Type 97, torpedo
 Army Type 97, heavy
 Army Type 98, heavy
 Navy Type 99, dive
 Navy Type (probably) 0, medium⁵

⁴ See TM 30-38 for known information on Japanese planes prior to March 1941.

⁵ This is a new type of medium bomber which was observed for the first time in Australia. Like Japan's best fighter plane, the bomber is given an "0" designation, which means it was designed in 1940. The plane resembles the Japanese Mitsubishi Type 96 heavy bomber except that it is slightly larger and that its wing tips are rounded. It has 2 radial engines and is equipped with one 20-mm. cannon, in the extreme tail; one 7.7-mm. machine gun located in the extreme nose, and one 7.7-mm. machine gun in each side blister, about midway of the tail edge of the wing and the tail. The plane can carry one torpedo.

(2) Fighters:

Navy Type 97
Navy Type 0^a
Navy Type 96
Army Type 97
Army Me. 109 (German)

(3) Floatplanes:

Type 97, fighter
Type 97, reconnaissance
Type 95, reconnaissance
Type 94, reconnaissance

(4) *Flying boats*.—The only one of these observed to date is Type 97.

b. Bombs

Japanese bombs are classified as army or naval. They usually consist of three parts: nose, body, and tail—either welded together, or, in addition to being welded, riveted, screwed, or double-screwed together. None of their bombs is cast or forged in one piece. Also, the three parts of the bomb are of different thickness and therefore have different degrees of fragmentation. Poor detonation is frequent. Scattered powder, large fragments, or undetonated bodies are found near bomb craters after a bombardment.

The size of bombs used by the Japanese ranges from a 2-pound antipersonnel bomb to 1,000-pound demolition bombs. Large numbers of 100-pound fragmentation types have been dropped as well as a small number of 500-pounders. A dual-purpose bomb,

^aFrom the point of view of performance, this plane, which is highly maneuverable, is considered Japan's best, and it is comparable to the leading United Nations' fighters. It has a 900-horsepower motor and is armed with two 20-caliber cannon and two fixed machine guns.

weighing 110.23 pounds, was used in Malaya. It is made of both high explosive and incendiary material. The incendiary part consists of 1 by $\frac{3}{4}$ inch cylinders, which are filled with black rubber impregnated with phosphorus. The bomb explodes upon impact and its 8-inch drawn-steel casing shatters into fragments which cover a radius of 50 yards. Water will extinguish the pellets. Upon drying out, however, they will reignite up to 10 hours after the bomb has exploded. The Japanese also used white phosphorus as a filler in bombs for its incendiary effect.

The British Navy reports that the Japanese have dropped delayed-action incendiary bombs by parachute. The bombs, with a delayed action up to 12 hours, were painted black and had a small red band 6 inches from the nose. They are 6 inches in diameter and $3\frac{1}{2}$ feet long.

Over Corregidor the Japanese used a new type of bomb, which burst with a huge flame. Two of the bombs dropped on April 3 exploded about 500 feet above the ground.

c. Detachable Gasoline Tank

The Japanese are using an extra, detachable gasoline tank on some (probably all) of their fighter planes. The type 97 fighter, for instance, carries 70 gallons of gasoline in a fixed tank and 66 in the detachable tank. Use of the latter tank is calculated roughly to increase the range of the fighters by 560 miles.

d. Observation Balloons

These were used by the Japanese during the sieges of Singapore and Corregidor. No details of their make-up are available.

e. Barrage Balloons

The Japanese were utilizing barrage balloons in the Tokyo area when it was bombed by United States Army bombers recently.

f. Two-Way Radio

A Japanese two-way aircraft radio set removed from a crashed plane showed that it was designed and constructed to perform very efficiently, and that good materials and components were used throughout. Most of the parts appeared to be of Japanese make and apparently were copies of United States manufacture. The construction showed both United States and German influence. The set has a positive radius of communication of about 450 miles. The reception and transmission range is 300 to 500 kilocycles and 5,000 to 10,000 kilocycles, respectively. The set was detached when found, and it is not known from what type of plane it came. However, previous information indicated that the set was designed for use in light bombers and long-range fighters.

(1) *Receiver*.—The receiver is a superheterodyne and has:

(a) One radio-frequency stage, first detector; one

intermediate frequency stage, second detector; power output;

(b) Plug-in coils for various bands of frequencies;

(c) Beat-frequency oscillator for continuous wave telegraphy.

(2) *Transmitter*.—The transmitter, which could not be removed from the mounting chassis, has the following characteristics:

(a) Plug-in coils for various bands of frequencies;

(b) Crystal-controlled (6,200 kilocycles).

(3) *Generator*.—No clue could be obtained as to whether the generator was run by a windmill or a battery, but the voltage regulator (in the bottom right-hand corner of the transmitter panel) was fitted in the very best technical manner. The supply of the fitting indicates that the generator may be battery-driven.

(4) *Voice Transmission*.—The voice can be transmitted straight or “scrambled.”

43. MINES

In the Philippines the Japanese used a light, disk-type road mine.

44. CLOTHING

a. General

The dress of the Japanese soldier has not been uniform or exactly military in some respects—probably due in a large measure to clothing improvised to meet particular tactical situations. For instance, white

clothing of varying types were used in the Malayan campaign so that the Japanese would not mistake the identity of each other in the jungle. Sometimes Japanese were seen dressed almost completely in white; sometimes they wore a white vest-type garment over shirts; on occasion they wore white bands on their caps or arms. In all cases clothing was very light.

b. Uniform

The regular uniform is khaki or khaki-green, with the trousers either tapered or tied at the ankles. Naval landing troops normally wear a grey-green colored uniform. On reconnaissance and infiltration missions the Japanese frequently wore only shirts, shorts, and light shoes with rubber soles. For night operations men on patrols stripped except for shorts or a loin cloth. Bicycle troops wore white undershirts over khaki or green shirts, and about half of them wore trousers and the others shorts of varying descriptions.

c. Headgear

These include skull caps, peaked caps, topees (tropical hats), and metal helmets. The topee sometimes is worn over the metal helmet. The naval landing troops wear the metal helmet with an anchor on the front. Army troops have a star on their helmets.

d. Footgear

The types vary. Besides conventional shoes, for special missions some wear light rubber-soled sneakers

of the athletic type. Others wear hobnailed shoes to facilitate movement over rough terrain.

e. "Sennimbari" (1,000 Stitches)

This is a red sash worn around the waist and under the uniforms by a few Japanese soldiers. It is supposed to confer upon the soldier luck, courage, and possibly immunity from the opposition fire. One thousand stitches are used to make the sash. Members of the Japanese Patriotic Women's Association stand at street corners in Japan and ask passersby to make one stitch—thus 1,000 persons help to make a sash. A slogan on the sash reads: "Buun Chokyu" ("Everlasting Success in War").

f. Individual Items

Usually the Japanese soldier carries a minimum of equipment in addition to arms and ammunition. He wears a leather belt and a canvas haversack with an attached bag for personal belongings. Small entrenching tools are part of the normal equipment. Also, rubber belts which can be inflated for use in crossing rivers are usually carried.

g. Sniper's Equipment

Reports from the Philippines indicate that the Japanese sniper carries the following equipment:

Gas mask, green combination mosquito net, camouflage hood covering his helmet, head, and shoulders; green corded net to camouflage the rest of his body;

black wire eye-screen for protection from sun glare; coil of rope to use in climbing and tying himself to trees; 5-inch-long sack of rice; small bag of hardtack; one-half pound of hard candy; package of concentrated food; can of field rations, can of coffee; can of vitamin pills; can of chlorine to purify water; mess kit; canteen; antidote for mustard gas; quinine; stomach pills; gauze pads, roll and triangular bandages; spare socks; gloves; toothbrush; flashlight with rotating varicolored lenses (one color apparently for recognition signal); and six spare lenses for eyeholes of gas mask (some usable in subzero weather).